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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. SM |
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INVENTOR'S NAME (Print or Type)

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| EXAMINER |
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| ART UNIT | PAPER NUMBER |
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DATE MAILED:

04/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/636,226

Applicant(s)

Hirose

Examiner

Ana Fortuna

Group Art Unit

1723

☒ Responsive to communication(s) filed on Aug 10, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-11 is/are pending in the application.

Of the above, claim(s) 6-11 is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-5 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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*Election/Restriction*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-5 , drawn to a membrane, classified in class 210, subclass 500.38.
  - II. Claims 6-11, drawn to A method of making a membrane, classified in class 264, subclass 42.

2. The inventions are distinct, each from the other because of the following reasons:  
Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the membrane of group I can be made by including the bromine as part of the membrane composition, e.g. in the amine compound or in the polyfunctional acid halide.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Jonathan P. OSHA on 4/5/01 a provisional election was made without traverse to prosecute the invention of group I, claims 1-5.

Affirmation of this election must be made by applicant in replying to this Office action.

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Claims 6-11 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

### DETAILED ACTION

#### *Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

6. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Uemura et al. (4,761,234). Reference '234 discloses a composite semipermeable membrane having a substrate or support and an ultrathin membrane coated on the support, and made of aromatic polyamide crosslinked with polyfunctional acid halide compound, e.g. trimesoyl chloride (abstract, column 16, lines 6-36). '234 discloses the aromatic amine as an amine as having substitute

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groups, that can be selected to be halogens, e.g. chlorine, bromine (column 3, lines 25-68, column 4, lines 1-14), therefore the final membrane will have bromine as part of the polyamide skin layer in the TFC membrane. Regarding claims 2, the bromine as part of the aromatic amine is disclosed (column 3, lines 62-68, column 4, line 1). As to claim 3, the number of reactive amino groups in the aromatic amine is selected to be at least 2, or between 2 and 10, therefore, if in formula 4 for example with select R1 to R6 as amino reactive groups, and select bromine for the rest of R substituent groups, the Br/N will be lower than 1 as claimed in claim 3.

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Linder et al.(4,778,596). Reference '596 discloses a thin film composite membrane including a support and a polyamide layer made by reacting an amine and polyfunctional compound, e.g. PEI, and carboxylic acid halide on a support (abstract, column 3, lines 33-68, column 4, lines 41-50, column 7, lines 6-40), and other reactive groups, and further disclosed these groups as containing halogen, e.g. bromine, fluorine, chlorine, etc (column 13, lines 37-62).

### *Claim Rejections - 35 USC § 103*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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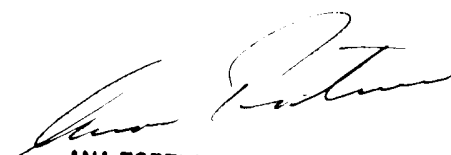
10. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura et al. (4,761,234). Reference '234 discussed above, fails to disclose the membrane as suitable for isopropyl alcohol rejection, or boron rejection and the rejection at the particular operation conditions claimed, however, discloses the membrane as reverse osmosis and having a high water flux and salt rejection, therefore, the rejection of boron and alcohol as claimed can be expected to one skilled in the art at the time the invention was made since boron and alcohol are conventionally removed by reverse osmosis. It would have been obvious to one skilled in the art at the time the invention was made to adjust membrane porosity, thickness, amine composition, etc. in order to have a membrane suitable for a specific process, and within the reverse osmosis pore size range.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana Fortuna whose telephone number is (703) 308-3857. Facsimile (703) 305-7718.

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ANA FORTUNA  
PRIMARY EXAMINER  
GROUP 1300  
1723

Ana Fortuna

April 6, 2001